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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,344	04/01/2004	Yoshiaki Sakagami	59406.00016	5350

32294 7590 09/24/2007
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EXAMINER

RICE, ELISA M

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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09/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/814,344

Applicant(s)

SAKAGAMI ET AL.

Examiner

Elisa M. Rice

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/29/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This office action is responsive to applicant's remarks received on May 29, 2007.

Claims 1-8 are currently pending.

Priority

2. The foreign priority claim filed March 31, 2003 was not entered because the foreign priority claim was not filed during the time period set forth under 35 U.S.C. 119 (a)-(d) or (f). Applicant may claim benefit of an earlier filing date of a foreign application under 35 U.S.C 119 (a)-(d) or (f) provided the application is filed within 12 months from the earliest date on which such foreign application was filed.

It is noted that applicant has not addressed the foreign priority matter advanced by the Examiner in paragraph 1 of the previous Office Action. Foreign priority continues to be denied.

3. Claim 1 continues to stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of co-pending Application No. 10/814,343 in view of Kuno.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 2, 3, 4, 5, 7, and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by Kuno (US 5,802,494).

Regarding claim 1, Kuno discloses an image transmission system for a mobile robot, comprising:

a camera for capturing an image as an image signal (Figure 2B, 31a and 31b; "video camera", Kuno, column 1, line 11).

human detecting means for detecting a human from the captured image (*"As can be understood from FIG. 16, the facial features of the subject,*

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e.g., the eyebrows, the eyes, the nose, the ears, the mouth, have the position relation which is common to human beings. This relation is defined by the positions of individual facial features with respect to the vertical and horizontal directions, and also by the distances between the facial features. The designated local module or the host computer 6d can, therefore, determine the positions of the facial features detected in step f4, in accordance with the data representing said position relation. To detect the images of the facial features, the vertical center line of the subject's face is first detected from the outline of the subject's head, the angle by which the subject faces away from the video camera 31a is then determined from the position of the center line and the position of the top of the head. More specifically, the host computer 6d determines the angle from the positions of the vertical center line of the face and the top of the head, and then determines the position relation among the facial features. If any facial feature detected is not located at the position it should take, it will be identified in accordance with its position with respect to those of the other facial features detected later. If the facial feature cannot be identified, the local module assigned to the region in which the facial feature may exist processes the

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video signals representing the region, for the second time.",
Kuno, column 12, lines 43-65)

a power drive unit for moving the robot toward the detected human ("Another drive mechanism is incorporated in the trunk of the robot 5. When this mechanism is actuated, the robot 5 moves in any direction on the floor", Kuno, column 28, lines 27-29);

face identifying means for identifying a position of a face of the detected human ("As can be understood from FIG. 16, the facial features of the subject, e.g., the eyebrows, the eyes, the nose, the ears, the mouth, have the position relation which is common to human beings. This relation is defined by the positions of individual facial features with respect to the vertical and horizontal directions, and also by the distances between the facial features. The designated local module or the host computer 6d can, therefore, determine the positions of the facial features detected in step f4, in accordance with the data representing said position relation. To detects the images of the facial features, the vertical center line of the subject's face is first detected from the outline of the subject's head, the angle by which the subject faces away from the video camera 31a is then determined from the position of the center line and the

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position of the top of the head. More specifically, the host computer 6d determines the angle from the positions of the vertical center line of the face and the top of the head, and then determines the position relation among the facial features. If any facial feature detected is not located at the position it should take, it will be identified in accordance with its position with respect to those of the other facial features detected later. If the facial feature cannot be identified, the local module assigned to the region in which the facial feature may exists processes the video signals representing the region, for the second time.", Kuno, column 12, lines 43-65)

face image cut out means for cutting out an image of the detected human according to information from the camera; ("the image of the subject's head is extracted from the input image (Figure 11A)", Kuno, column 9, lines 43-44) ; and

image transmitting means for transmitting the cut out face image to an external terminal ("and the signals showing the subject's image are transmitted to a CRT display installed in a monitor room", Kuno, column 1, lines 60-62)

Regarding claim 2, Kuno discloses an image transmission system according to claim 1, further comprising means for monitoring state variables including a current position of the robot; the image transmitting means transmitting the monitored state variables in addition to the cut out face image ("FIG. 28 is a diagram illustrating how to determine the position of the robot," Kuno, column 3, lines 16-17, "The physician looks at the subject's face being displayed on the display of the monitor console and also checks the physical conditions being displayed on the other displays of the console, in order to decide what he or she should do for the subject.", Kuno, column 5, lines 26-30, "the circuit 40 starts transmitting the image data representing the image of the subject, to the monitor section 2", Kuno, column 5, lines 14-16, "Meanwhile, the electronics sensors 33 installed in the sickroom, such as the hemodynamometer and the electrocardiograph, both attached to the subject, output diagnosis signals, representing the physical conditions of the subject. The video signals and the diagnosis signals are input to the signal processor 32 incorporated in the data-processing/control section 4. The processor 32 processes these input signals, thereby generating image data and diagnosis data. The image data and the diagnosis data are supplied to the abnormality decision circuit 34 incorporated in the robot 5.", Kuno, column 5, lines 10-20).

Regarding claim 3, Kuno discloses an image transmission system according to claim 1, wherein the robot is adapted to direct the camera toward the position of the face of the detected human ("Since the video camera 31a built in the robot 5 is directed to only the subject on the bed", Kuno, column 7, lines 30-31).

Regarding claim 4, Kuno does not disclose an image transmission system according to claim 1, further comprising means for measuring a distance to each of a plurality of humans, the human detecting means being provided with means for detecting a human closest to the robot ("The robot 5 has several ultrasonic sensors on its trunk. The ultrasonic sensors detect the distances between the robot 5 and the other objects in the sick room. An alarm signal is generated and transmitted to the monitor section 2 when any ultrasonic sensor detects that the robot 5 is too close to any other object.", Kuno, column 30, lines 34-39).

Regarding claim 5, Kuno discloses an image transmission according to claim 1, wherein the mobile robot is adapted to move toward the detected human according to a distance to the detected human ("The robot 5 has several ultrasonic sensors on its trunk. The ultrasonic sensors detect the

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distances between the robot 5 and the other objects in the sick room. An alarm signal is generated and transmitted to the monitor section 2 when any ultrasonic sensor detects that the robot 5 is too close to any other object.", Kuno, column 30, lines 34-39).

Regarding claim 7, Kuno discloses an image transmission system according to claim 1, wherein the face identifying means comprises means for detecting an outline of the detected human, and identifying a face as an area defined under an upper part of the outline of the detected human ("As can be understood from FIG. 15, in step f1, one of the the local modules processes the video signals representing those pixels near the sides of the rectangle (FIG. 11D), thereby detecting the outline of the subject's head.", Kuno, column 12, lines 12-15).

Regarding claim 8, Kuno does not disclose an image transmission system according to claim 1, wherein the human detecting means is adapted to detect a human as a moving object that changes in position from one frame of the image to another ("In step i7, it is determined whether or not any object is moving. This decision is made based on the ratio in number of the small-value pixels to the great-value pixels--all stored in

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the memories. More precisely, when this ratio is greater than a threshold value, it is determined that the input image includes the image of at least one moving object. This is because the pixels defining the outline of a movable object, if any in the input image, have great values when the outline does not move at all during said predetermined period. Hence, whether or not any object is moving can be determined very accurately." Kuno, column 20, lines 16-26).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kuno (US 5,802,494) and Higaki (2004/0028260 A1).

Regarding claim 6, Kuno discloses an image transmission system according to claim 1, further comprising a face database ("The operator can store into the host computer 6d the data representing the properties of the subject's head, including those of his or her facial features.", Kuno, column 17, lines 57-59)

Kuno does not teach an image transmission system that includes a face database that stores images of a plurality of faces and face identifying means for comparing the cut out face image with the faces stored in the face database to identify the cut out face image.

However, Higaki teaches an image transmission system that includes a face database that stores images of a plurality of faces and face identifying means for comparing the cut out face image with the faces stored in the face database to identify the cut out face image ("Reference symbol 72 denotes a face database in which human facial recognition information is predefined. [0041] The face recognition section 60 picks out only the face part from the color image 81, based on the face position coordinates 105 and 106, and obtains a face feature vector. The face recognition

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section 60 searches the face database 72 based on the data similar to the obtained feature quantity, and in the case where corresponding face data exists, stores the individual person ID 104 assigned to the corresponding face data in the memory 8. The generation operation for the 3D object data 100 described here is repeatedly carried out regardless of the other processing status.", Higaki, paragraph 86).

It would have been obvious to one of ordinary skill in the art to combine the mobile robot taught by Kuno, as described in claim 1 above, with a face database that stores images of a plurality of faces and face identifying means for comparing the cut out face image with the faces stored in the face database to identify the cut out face image as taught by Higaki in order to "recognizes faces from amongst a plurality of persons" (Higaki, paragraph 22).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

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1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/814343 in view of Kuno (US 5,802,494).

Claim 1 of copending application 10/814343, while disclosing a camera, a human detecting means, a power drive unit, an image cut out means and an image transmission means does not teach a face identifying means and a face image cut out means.

Kuno teaches a system in the same field of image transmission for a mobile robot, comprising the face identifying means and a face image cut out means as discussed in the Claim 1 rejection above.

It would have been obvious to modify claim 1 of application 10/814343 to include a face identifying means and a face image cut out means because the face of a human being is the most identifiable part of a human being and including the rest of the body is

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unnecessary in that it does not add much additional information that cannot be obtained from viewing solely the face.

Response to Arguments

Summary of Applicant's Remarks: Applicant claims on page 4 in the first paragraph that "there is no suggestion or motivation in Kuno for human detecting means for detecting a human from a captured image, and a power drive unit for moving the robot toward the detected human at least because the robot of Kuno is positioned by an operator and it is not moved towards that human that is detected. Instead, once the operator has positioned the robot next to the patient, Kuno captures an image from which the patient's head and facial features are extracted and monitored for changes....."

Examiner's Response: The following excerpts are provided from the Kuno patent in column 30, line 48: "The robot 5 can self control as well as the physician can guide the robot 5.." and in column 29, line 11 to 17 "The robot 5 shown in Fig. 4 can be replaced by a wheelchair robot of the type shown in Fig. 27, in case the subject is unable to walk. If the subject cannot set up by himself or herself, the robot's arm can be made tough enough to help the subject rise up from the bed. Also, if necessary, the robot's arms can be so designed as to hold and lift the subject off the bed." Kuno states in column 30 in lines 61 to 66: "The wheelchair robot shown in Fig. 27 can have various sensors to achieve self-control, instead of remote control. The signals output by these sensors and the data obtained by processing the image data output by the robot's video camera and

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representing the position of the robot 5 control the drive mechanisms.” In other words, the robot need not be positioned by the operator and once positioned capture “an image from which the patient’s head and facial features are extracted...” as asserted by the Applicant because the robot in self-control mode uses the image it has captured of the subject and processing of this image data “(processing the image data output by the robot’s video camera”) in order to move towards the subject (“control the drive mechanism”).

Summary of Applicant’s Remarks: Applicant claims in the second paragraph of page 4 that the facial feature detection steps described in, e.g., col.12, lines 43-67 related to Fig. 16 of Kuno does not teach or suggest Applicant’s human detecting means, which enables the power drive unit to move toward the detected human, as recited in claim 1.”

Examiner’s Response: The following excerpt is provided from the Kuno patent in column 28, line 37: “When the subject walks in the sickroom, the robot’s head is moved, thus tracking the subject so that the subject’s image remains in the view field of the video camera.” Kuno also states in column 12, lines 5-18 “More specifically, the local modules of the processor 32 process video signals, detecting the angle by which the subject faces away from the video camera 31a, and the positions of the subject’s eyebrows, eyes, ears, nose and mouth. Step b1, i.e., the initialization of the sub-process, will be described with reference to the flow chart of FIG. 15. As can be understood from FIG. 15, in step f1, one of the local modules processes the video

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signals representing those pixels near the sides of the rectangle (FIG. 11D), thereby detecting the outline of the subject's head. Then, in step f2, the regions within the rectangle, in which the images of the subject's eyes, nose, and mouth possibly exist, are detected. "

Thus, the robot in the Kuno patent has "human detecting means" that utilize the facial feature detection described in column 12, lines 43-67 of the Kuno reference to "enable the power drive unit" in the neck of the robot (among other places) "to move toward the detected human" in order to keep track of the person.

Summary of Applicant's Remarks: Applicant claims in the second paragraph of page 5 that "extracting" a subject's head as shown in Kuno does not teach or suggest Applicant's claimed recitation at least for the following reasons: Col. 17, line 52 to col 18, line 2, of Kuno shows that the operator can store into a host computer that data representing the properties of the subject's head, including those of his or her facial features, and that the operator can store in the host computer the properties of the clothes the subject wears."

Examiner's Response: Claim 1 of the present application simply recites the following: "face image cut out means for cutting out a face image from the captured image of the detected human." Therefore, the following argument is not directed to what has actually being claimed.

Summary of Applicant's Remarks: Applicant claims on pages 6 and 7 that Higaki is not a proper reference in claim 6 "because it is barred by 35 U.S.C. 103 (c)."

Examiner's Response: "35 U.S.C. 103(c), as amended by the CREATE Act, applies only to subject matter which qualifies as prior art under 35 U.S.C. 102(e), (f), or (g), and which is being relied upon in a rejection under 35 U.S.C. 103.", MPEP 2146. Higaki is prior art under 102(a). Higaki was published on February 12, 2004, which is before applicant's filing date of April 1, 2004. Therefore, Higaki is not barred under 103(c).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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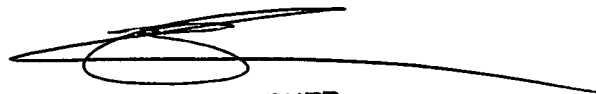
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elisa M. Rice whose telephone number is (571)270-1582. The examiner can normally be reached on 8:00a.m.-5:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Elisa Rice *ER* 9/17/2007
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2624

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